



Energy Efficiency and Renewable Energy
Federal Energy Management Program

How to Buy an Energy-Efficient Gas Griddle

Why Agencies Should Buy Efficient Products

- Executive Order 13123 and FAR part 23 direct agencies to purchase products in the upper 25% of energy efficiency, including all models that qualify for the EPA/DOE ENERGY STAR® product labeling program.
- Agencies that use these guidelines to buy efficient products can realize substantial operating cost savings and help prevent pollution.
- As the world's largest consumer, the federal government can help "pull" the entire U.S. market towards greater energy efficiency, while saving taxpayer dollars.

Federal Supply Source:

- General Services Administration (GSA)
General Products Center, Fort Worth TX
Phone: (817) 978 - 4545
www.fss.gsa.gov

For More Information:

- DOE's Federal Energy Management Program (FEMP) Help Desk and World Wide Web site have up-to-date information on energy-efficient federal procurement, including the latest versions of these recommendations.
Phone: (800) 363-3732
www.eren.doe.gov/femp/procurement
- The Food Service Technology Center (FSTC) has several fact sheets and other publications on food service equipment.
(925) 866-2844
www.fishnick.com
- The North American Association of Food Equipment Manufacturers (NAFEM) has information on standards, guidelines, and other publications on food service equipment.
Phone: (312) 245-1054
www.nafem.org
- American Society for Testing and Materials (ASTM) has test standards for food service equipment.
Phone: (610) 832-9585
www.astm.org
- Lawrence Berkeley National Laboratory provided supporting analysis for this recommendation.
Phone: (202) 646-7950

Efficiency Recommendation^a

Performance Metric	Recommended Level	Best Available
Cooking Energy Efficiency ^b	38% or more	45%
Idle Energy Rate ^c	16,000 Btu/h or less	14,500 Btu/h

- a) This efficiency recommendation covers flat, 3-foot long griddles.
- b) Cooking energy efficiency based on the ASTM Standard Test Method for the Performance of Griddles (ASTM F1275).
- c) Idle energy rate based on a standard 3-foot long griddle. Other griddle sizes have proportionally higher or lower levels of idle rate and annual energy use.

The General Services Administration (GSA) is the federal supply source for gas griddles, which can be purchased through GSA's Schedule 539. Request GSA vendor price lists for models that meet this energy efficiency recommendation.

For gas griddles purchased through commercial sources (retailer, distributor, or contractor), specify a minimum cooking energy efficiency and idle energy rate that meet or exceed this efficiency recommendation. Griddles with infrared burners will typically meet or exceed the recommended efficiency levels. A high efficiency gas griddle costs more initially, but may have twice the production capacity of a standard griddle and consume 10% - 15% less energy in a typical operation.

The energy performance of a gas griddle is based on its cooking energy efficiency and its idle rate (in a "ready-to-cook" mode). A griddle maintains a cooking surface at a relatively high and consistent temperature while cooking food. During this time, the burners or elements may cycle off as the thermostat is satisfied. The ASTM test method (F1275) uses the "hamburger patty test" for determining

Definitions

Cooking energy efficiency is defined as the ratio of the energy absorbed by the food to the total energy input to the griddle.

Idle energy rate is amount of energy an appliance uses to maintain a stabilized operating temperature.

Where to Find an Energy-Efficient Gas Griddle

How to Select an Energy-Efficient Gas Griddle

Energy Performance

cooking energy efficiency. Idle, or standby, energy consumption of a griddle is a significant portion (up to 40%) of daily energy use.

In recent years, several energy-saving features have been designed into gas griddles. Infrared burners offer a compact and efficient means for transferring heat to the griddle plate (cooking surface), which can provide quicker recovery time when food is placed on the griddle. Chrome-surfaced griddle plates radiate up to 50 percent less heat into the kitchen, use less energy, and are easier to clean, when compared to standard griddles. "Steam-powered" griddles incorporate a sealed chamber containing high temperature steam directly beneath the cooking surface. The steam condenses on the underside of the griddle plate, quickly transferring heat to the cooking surface and providing greater temperature uniformity. Solid-state thermostats offer more precise temperature control than conventional thermostats, responding quickly as a griddle is recovering to the thermostat set point. Increased control is achieved by using a more sensitive thermostat with a smaller bandwidth. Grooved griddle plates produce the characteristic striped sear mark of a charbroiler and use less than a fifth the energy while producing less smoke and heat. These griddles may be a lower-cost alternative to charbroilers in some operations.

Technology Options



Users should implement an equipment start-up/shut-down schedule. Since most griddles take less than 15 minutes to preheat, griddles should be turned off when not in use. Eliminating three hours per day of standby time can save on energy costs. Also, turn off unused sections of the griddle during slow periods. For chrome griddles, follow the manufacturer's instructions on how to keep the surface clean, which can result in 30 percent lower idle energy rate.

User Tips

Cost-Effectiveness Example (3 foot, flat griddle)

Performance	Base Model	Recommended Level	Best Available
Cooking Energy Efficiency	30%	38%	45%
Idle Energy Rate	18,000 Btu/h	16,000 Btu/h	14,500 Btu/h
Annual Energy Use	1,150 therms	1,060 therms	960 therms
Annual Energy Costs	\$480	\$425	\$380
Lifetime Energy Cost	\$3,980	\$3,530	\$3,150
Lifetime Energy Cost Savings	–	\$450	\$830

Cost Effectiveness Assumption

Annual energy use was calculated based on preheat, idle, and cooking energy efficiency and production capacity test results from applying ASTM F1275. Annual energy use in this example is based on the griddle operating for 12 hours a day, 365 days per year, with one preheat per day and cooking 100 pounds/day of food. The assumed gas price is 40¢/therm, the federal average gas price in the U.S.

Lifetime Energy Cost is the sum of the discounted value of annual energy costs based on an average usage and an assumed griddle life of 10 years. Future gas price trends and a discount rate of 3.2% are based on federal guidelines (effective from April, 2002 to March, 2003).

Metric Conversions

1 therm = 100,000 Btu
= 29.3 kWh
= 105.5 MJ
°F = (1.8 * °C) + 32

Using the Cost-Effectiveness Table

The example above is based on a standard 3-foot flat griddle. Other standard size griddles (e.g., 2-foot, 4-foot) will have comparable performance and savings. In the example above, a gas griddle with a cooking energy efficiency of 38% is cost-effective if its purchase price is no more than \$450 above the price of the base model. The Best Available model, with a cooking energy efficiency of 45%, is cost-effective if its price is no more than \$830 above the price of the base model. High-efficiency designs often come bundled with other features, such as all-stainless steel construction and high quality components. In addition to lower operating costs, high efficiency griddles exhibit higher production rates and radiate less heat into the kitchen than base model griddles.

What if my Gas Price are different?

To calculate Lifetime Energy Cost Savings for a different gas price, multiply the savings by this ratio: $\left(\frac{\text{Your price in } \$/\text{therm}}{40 \text{ } \$/\text{therm}} \right)$.

